tech briefs

Westinghouse Savannah River Company

Balance Checker Software

at a glance

- Quickly checks equipment calibration
- Graphically displays deviations
- Works with all manufacturers' models
- Uses MS Excel spreadsheets
- Uses NIST testing conventions

for more information

Kevin Huffman, Licensing Specialist

Westinghouse Savannah River Company
Building 773-41A, Room 239
Aiken, SC 29808

Phone: 803-725-5788 or 800-228-3843
Fax: 803-725-4988

e-mail: russell.huffman@srs.gov

Ensures integrity of precision measurements

This software program evaluates the performance characteristics of balances and scales against both customer and manufacturers' specifications. With minimal input from users, the program uses an array of statistical tests to calculate the total measurement uncertainty of balances and scales.

In commercial uses, the Balance Checker provides a quick and easy way to ensure the quality of measurements made with weighing equipment. In the laboratory, the Balance Checker is a valuable tool to ensure precise control of weight measurements for critical research and testing parameters.

Balance model and test points are preloaded

From a pull down menu, the user selects a balance model. Balance Checker is preloaded with the recommended tolerances for optimal performance of balances from most major manufacturers. Other models can be easily added. Once the model is selected, calculation formulae are automatically populated with the manufacturer's data.

Since manufacturers' specifications are based on factory conditions and users have their own performance requirements, user-specific requirements can be added to account for variations in field conditions.

Weight specifications are customized

Prior to initial use, a one-time entry of manufacturer-certified weight information (apparent mass and uncertainty) for up to four sets of weights is required. Revision of this entered data would be required only when weights are recertified or replaced.

Programmed formulae provide instant results

The user places the prescribed weights on the balance and enters the displayed measurement into the program, which automatically calculates linearity, bias, and precision. Input from corner load testing also is entered. Balance-to- weight uncertainty ratios are automatically calculated. The total measurement uncertainty of the balance is calculated at the 95 percent confidence level.

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Deviations are highlighted

The automated reporting feature quickly pinpoints out-of-tolerance conditions for correction. Graphic charts display deviations in an easy- to-read format.

The program also creates archival records and automatically schedules the next calibration check date for each balance entered.

Uses national standards

Balance Checker uses the same testing conventions used by the National Institute of Standards and Technology (NIST). The program can be configured to comply with NIST Handbook 44. The program also could be configured to use Deutscher Kalibrierdienst (DKD) testing conventions.

Proven useful

Balance Checker is widely accepted as the standard balance calibration checking method at the Department of Energy's Savannah River Site.

The software program accommodates the full range of measuring instruments from analytical balances in the laboratory to large truck and warehouse scales.

Written in Microsoft Excel Version 97 for Windows, the program should be compatible with other platform versions and with newer versions of Excel.

Partnering opportunity

Westinghouse Savannah River Company (WSRC) invites interested companies to enter into a licensing agreement for the purpose of developing and distributing the copyrighted Balance Checker software as a commercial product.

Technology transfer

WSRC is the managing contractor of the Savannah River Site for the U.S. Department of Energy. WSRC scientists and researchers develop technologies designed to improve environmental quality, support international nonproliferation, dispose of legacy wastes, and provide clean energy sources.

WSRC is responsible for transferring technologies to the private sector so that these technologies may have the collateral benefit of enhancing U.S. economic competitiveness.

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